Wireless Phones and Hearing Aids

Cellular Telecommunications & Internet Association

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What Is The Goal?

- Usability - Any consumer who wants to use a wireless phone should be able to use one.

Understanding the Goal

- Hearing Aid Compatibility (HAC) and interference are different issues
- Requiring internal coupling (HAC) will not solve interference problems
- Hearing aid interference is the root problem and is not specific to wireless phones
- The wireless industry wants to participate in a solution but the solution cannot rest on the wireless industry alone

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HAC and Interference

- **Hearing Aid Compatibility** (HAC) is a term of art that means the ability of a phone to inductively couple with a hearing aid equipped with a T-coil
- **Interference** refers to the noise generated in a hearing aid when the aid is exposed to sources of RF energy such as wireless phones, computer monitors, and fluorescent lights
- Wireline phones use speakers that are designed to provide T-coil compatibility with hearing aids equipped with a T-coil.
- However, wireline phones do not rely on RF energy to transmit calls so hearing aids do not experience interference with wireline phones.
- HAC standard is designed for wireline phones; use of this standard for wireless phones will not result in the desired outcome

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Hearing Aid Compatibility and Wireless

HAC can:

- Benefit hearing aid wearers who have hearing aids with T-coils and who do not experience interference when using a wireless phone
- Provide inductive coupling only to the 20% of hearing aids that have T-coils
- Be found today in loopsets, other inductive coupling accessory devices and handsets currently on the market – giving T-coil users a choice of multiple compatibility solutions

HAC cannot:

- Fix the problem of interference
- Be retrofitted into phones already on the market

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Interference Mitigation in Hearing Aids

- Hearing aids can be made more immune so that they will not be as affected by the many RF sources in today's RF rich environment
- Increased immunity makes hearing aids resistant to many types of interference including that from digital wireless, security systems and other electronic devices – there is a demand from consumers
- Some countries require immunity levels when making purchases through national healthcare systems – there is a market
- It is a known solution to interference issues – it works
- Modification of hearing aids for relief from interference can be customizable for individual needs

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Industry Challenges

- Modification of wireless phones to minimize interference to hearing aids affects more than just the handset:
  - Implications for the basic functionality of wireless phones and could have serious implications for wireless networks and for other consumers
  - New industry standards would be required for transmit/receive bands
    - Requires product development, test, and implementation
  - Standards must meet regulations, carrier requirements, market viability, and globalization
- Manufacturers design and build phones on global platforms that cannot be easily or quickly modified and the addition of components in phones to provide coupling capability will require significant modifications of phones

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Consumer Options

- Wireless industry has provided accessibility options notwithstanding the fact that the HAC Act exemption is in place
  - Wide selection of accessory options:
    - T-coil accessory devices:
      - Loopsets, Magnetic Coupling
    - Bluetooth accessories:
      - being explored for use in phones and hearing aids
- Consumers have choices in the marketplace:
  - Purchase immunized hearing aids
  - Return hearing aids to manufacturers for increased immunity
  - Try different phones to see if one works
  - Increase the distance of the phone from the hearing aid through use of accessory devices

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International Solutions

- Europe and Australia – worked to resolve interference by increasing immunity in hearing aids

- Australia – "It was confirmed that the interference mechanism is intimately associated with the essential nature of the mobile telephone emissions and is not an incidental by-product which might for example be solved by improved shielding of the telephones."
  - Interference To Hearing Aids by the Digital Mobile Telephone System, GSM; NAL Report No. 131, May, 1995

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Conclusion

- The wireless industry wants to participate in a solution, but the solution cannot rest on the wireless industry alone

- Several important concepts:
  - Interference and hearing aid compatibility are different issues -- hearing aid interference is not specific to wireless phones
  - Requiring internal coupling (HAC) will only address 20% of hearing aids (those with T-coils), it will not solve interference problems
  - Unlike TTY, hearing aids are customized – a one size fits all approach to modifying handsets will not work

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Conclusion

- Steps to making digital wireless phones more usable by people with hearing aids:
  - Commitment to provide better information and education about options to consumers, wireless industry customer sales and service personnel, audiologists and hearing specialists, and hearing aid industry
  - Increased immunity of hearing aids
  - Cooperative efforts between the hearing aid and wireless industries to identify solutions using new technologies such as Bluetooth

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Statements from Oticon (hearing aid manufacturer) on Immunity and Interference

From Oticon's website:

- "To combat these problems we build high immunity into our newest hearing aids. While no hearing aids are completely immune, our digital line and our ERGO and Swift products in particular offer exceptionally low interference levels."

- "Interference levels also vary from hearing aid to hearing aid. In general, interference is worse with older or larger models."

- "If you experience interferance [sic] when using your own cellular phone, try installing a 'hand-free' set, that increases the distance between phone and hearing aid."

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